Real-world example:
NOVEL DOCUMENTATION OF MUSEUM ITEMS

Fig. 1 *Amphoroid Crater – KMKG A.1247-1.*

CASE STUDY

This case study simulates a plausible scenario in which a law enforcement agency (LEA) utilizes the ENIGMA platform to determine the authenticity of a cultural good. The object in question is a series of amphora fragments from the KMKG Collections (Object ID A.1247-1, see fig. 1). In this scenario, it is utilised as an 'object in transit' with limited metadata where the LEA is unaware of the origin of the fragments. As such the scenario checks the ENIGMA Platform's efficacy on documenting museum items.

LEAs often lack in-depth expertise in cultural heritage, thus the applicable LEA cannot identify the amphoroid fragments as replicas or authentic artefacts. Since the fragements do not come with accompanied documents, expert advice is sought. Based on this scenario, the LEAs initiate an assessment using the ENIGMA platform to help determine the object's authenticity and provenance and then assign a cultural hertage (CH) expert for further advice. Via ENIGMA, the expert can provide fast and accurate identification of the fragments cultural goods when expert cannot be on-site on short notice. This scenario emphasizes ENIGMA's role in enabling coordination between cultural heritage professionals and law enforcement agencies.

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Fig. 2 *Fragment showing the 'inscription', KMKG, A.1247-1.*

WALKTHROUGH

Step 1: LEA Input Phase: The LEA officer enters basic information about the amphora fragments into the ENIGMA platform, including an object description and a series of pictures. The provenance is initially recorded as "unknown – intercepted at airport". The data entry could be wrong. The officer requests an expert to assess the object's authenticity.

Step 2: Expert Review Phase: A cultural heritage expert is notified and accesses the ENIGMA platform. The expert examines the fragments and identifies a few issues with the initial input. They add details to the LEA's description, mentioning that the object consists of seven fragments. The expert also notices the inscription "A.1247-1" and adds it to the platform (see fig. 2).

Step 3: Verification and Logging: The expert provides a description stating that such inscriptions are uncommon on replicas and are more likely to be an inventory number from a museum or a number from an excavation (see fig. 3). The expert advises the LEA to place the object under protection for further investigation due to the lack of documentation and the presence of the inscription, indicating that the items is likely illegally trafficked. The ENIGMA system logs all updates, timestamps each change, and clearly attributes inputs to both the LEA and the expert.

Step 4: Outcome Delivery: A detailed report is generated, and the expert's advice to investigate further is sent to the border authorities. The object is placed under protection for further investigation, and the case is escalated to the appropriate authorities for a more in-depth inquiry into its origin.

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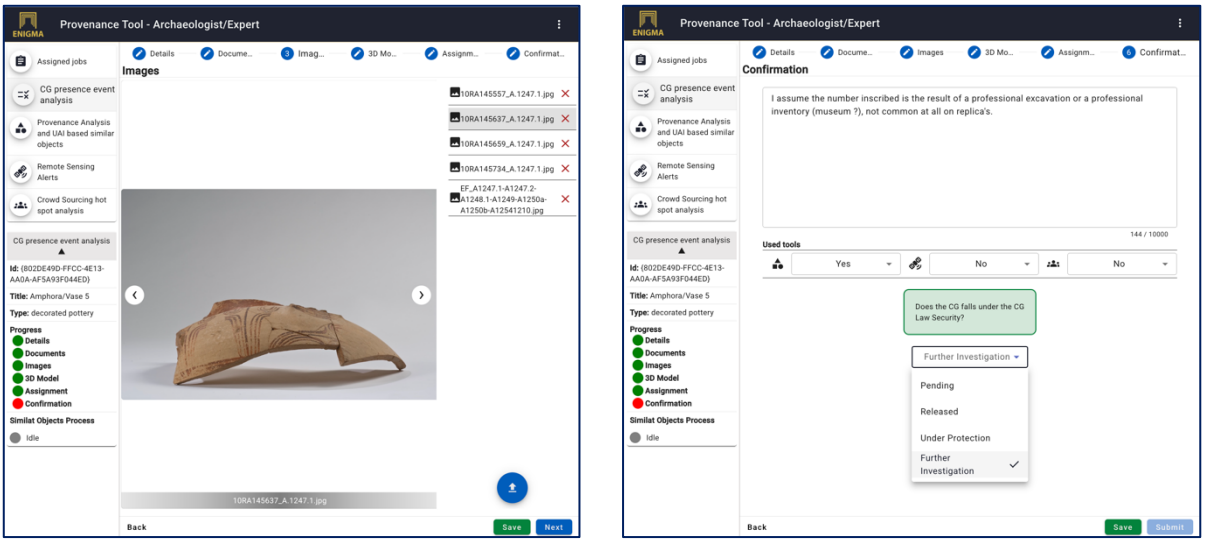

Fig. 3. *Expert screens of the ENIGMA Platform concerning the amphoroid crater.*

LESSONS LEARNED

This case demonstrated ENIGMA's ability to facilitate structured workflows between LEAs and CH experts. It highlighted the platform's utility in allowing an expert to identify an authentic item and advise the correct course of action. The audit and reporting functions of the platform ensured full traceability, which is vital when addressing legal or ethical concerns related to cultural goods. This pilot successfully showcased how the ENIGMA platform can be used to accurately identify authentic cultural artifacts and prevent their illicit trafficking.

- **Outcome 1:** Faster verification of object provenance, reducing time CH Experts spent on authentication of potentially stolen or looted cultural goods.
- **Outcome 2:** Accurate identification and adding of provenance data to authenticate the object, and advice LEAs in the necessary legal steps.
- **Outcome 3:** Demonstrated the utility of ENIGMA's Provenance Tool and collaborative documentation

FURTHER RESOURCES

APPLIED ENIGMA TOOLS:
- ENIGMA Provenance Tool
- ENIGMA Scenario Building Engine

RELATED BEST PRACTICES:
- Provenance Tool
- Scenario Building Engine
- Measuring CGs for LEAs
- Handling CG Objects for LEAs

FURTHER ONLINE TRAINING:
https://eu-enigma.eu/training/

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